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Site Survey for Optimum Location of Optical Communication Experimental Facility

A site survey was made to determine the optimum location for an Optical Communication Experimental Facility (OCEF) and to recommend several sites, graded according to preference. A site was desired which could perform two-way laser communication with a spacecraft and laser tracking with a minimum of interruption by cloud cover and other weather effects. Further, the effects of attenuation, backscatter, and turbulence introduced by the atmosphere were to be at a minimum.

Much of the study was devoted to the methodical application of numerical criteria in order to discard unfavorable areas to narrow the field, then to identify the most promising locations. The schedule for the study was quite short compared to other known comprehensive surveys.

A national survey was conducted which eliminated all but a single territory in which to look for sites. A section survey was then conducted which identified airways and air pollution zones that were incompatible with requirements. When these were eliminated, a number of small regions remained in which none of

the basic criteria was violated and a regional survey examined these regions in detail, and an initial list of prospective sites was identified.

Although this study deals with a very specific type of site survey, it is possible that the generalized techniques may provide a guide for those interested in the search for industrial or research locations.

Complete details of this site survey are contained in *Study of Optical Communication Experimental Facility*, Final Report, Vol. 1, Sylvania Electronic Systems-East. Copies of this report are available from:

Technology Utilization Officer
Marshall Space Flight Center
Huntsville, Alabama 35812
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No patent action is contemplated by NASA.

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